PB85-213783

Superfund Record of Decision (EPA Region 3) Bruin Lagoon Site, Pennsylvania, June 1984

(U.S.) Environmental Protection Agency
Washington, DC

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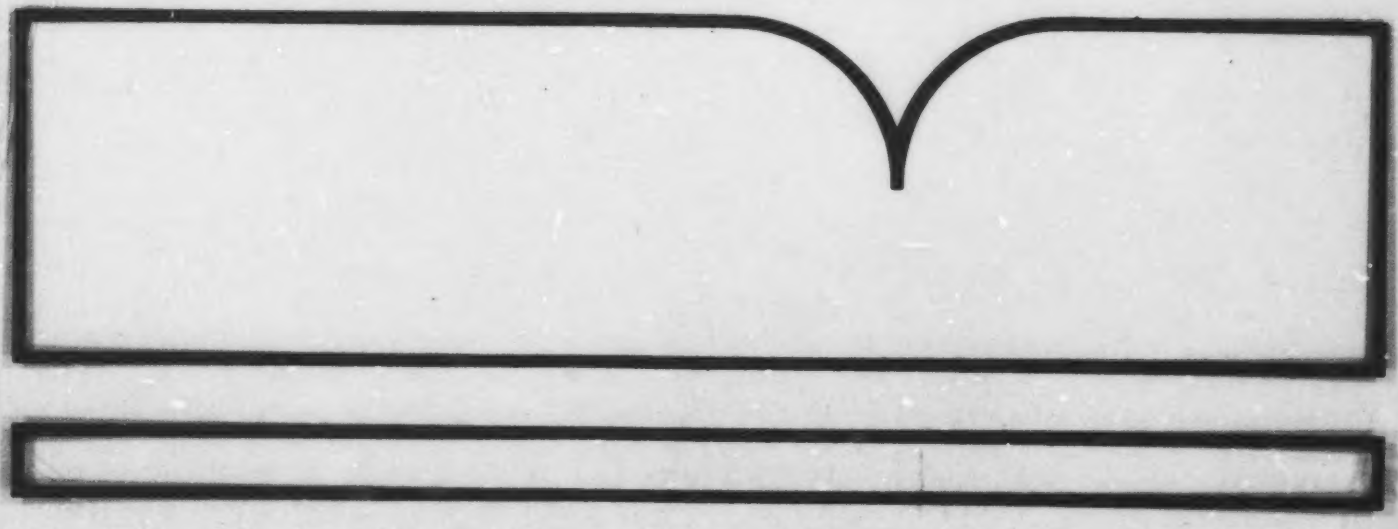

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Environmental Protection
Agency

Office of
Emergency and
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EPA

Superfund Record of Decision:

Bruin Lagoon Site, PA

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15. SUPPLEMENTARY NOTES

16. ABSTRACT

The Bruin Lagoon site occupies over four acres in Bruin Borough, Butler County, Pennsylvania. The focal point of the site is the one acre, earthen diked lagoon containing approximately 35,000 cubic yards of asphaltic sludge and 130,000 gallons of acidic liquid supernatant which was used for disposal for over 40 years. In addition to sludge and supernatant, the site contains about 40,000 cubic yards of covered lagoon material, 13,000 cubic yards of contaminated dike soil, and 2,000 cubic yards of contaminated surface soil from the scrap tankage area. Waste materials consists of white oil production wastes, residue from motor oil - refining, coal fines and fly ash.

The cost-effective remedial action involves removal and off-site disposal of the supernatant, physical stabilization of lagoons, effluent pond cleanup, construction of a ground water diversion channel, and stabilization of the dike. The total estimated capital cost is $1,456,000 and O&M costs are estimated at $60,000 over 30 years.

17. KEY WORDS AND DOCUMENT ANALYSIS

a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
Record of Decision Bruin Lagoon, PA Contaminated media: gw, sw, soil Key contaminants: asphalt sludge, acid liquids, waste oil, resins, fly ash, coal fines, sulfuric and sulfonic acids and petroleum wastes		

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Record of Decision
Remedial Alternative Selection

Site: Bruin Lagoon, Bruin Borough, Butler County, Pennsylvania

Analyses Reviewed:

I have reviewed the following documents describing the analysis of the cost effectiveness of remedial alternatives at Bruin Lagoon:

- Remedial Investigation and Feasibilty Report for Bruin Lagoon, Bruin Borough, Pennsylvania
- Draft Environmental Analysis for Waste Containment
- Staff Summaries and Recommendations

Description of Selected Option:

- Supernatant Removal and Off-site Disposal
- Physical Stabilization of Lagoons
- Effluent Pond Cleanup
- Ground Water Diversion Channel
- Dike Stabilization

Declarations:

Consistent with Title II of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), and the National Contingency Plan, I have determined that the on-site containment strategy for the Bruin Lagoon site is a cost-effective remedy, and that it effectively mitigates and minimizes damage to, and provides adequate protection of public health, welfare and the environment. I have also determined that the action being taken is in balance with available resources in the Trust Fund and other program demands.

In addition to the above, I have determined that the off-site disposal of the Lagoon supernatant is more cost-effective than other options for dealing with this material. An analysis of the costs and reliability of on-site versus off-site options has been performed, and it has been determined that there is no significant difference in costs. Further, off-site disposal is more reliable than on-site treatment because the quality control problems commonly associated with the startup and operation of an on-site treatment facility are avoided. Accordingly, the option complies with the requirements of Section 101(24) of CERCLA.

Rita M. Lavelle

Rita Lavelle
Assistant Administrator
Office of Solid Waste and Emergency Response

Bruin Lagoon Remedy Approval
Briefing Sheet

- Purpose of this briefing is to obtain AA approval for the remedy recommended by the Region and the State for the Bruin Lagoon site. A "Record of Decision" has been prepared to document the approval.

- Bruin Lagoon is an one acre, earthen diked lagoon containing approximately 35,000 cubic yards of asphaltic sludge and 130,000 gallons of acidic liquid supernatant. The Lagoon was used for sludge disposal for over 40 years.

- Waste material consists of white oil production wastes, residue from waste motor oil re-refining, coal fines and fly ash. The supernatant has a low pH due to the high solubility of sulfuric acid, sulfonic acid and sodium sulfate in the sludges. Alkyl benzene sulfonate is also present in the Lagoon.

- Ground water and surface water contamination is the primary concern at Bruin Lagoon. Down-gradient wells and Bear Creek have shown contamination.

- Roy F. Weston completed a remedial investigation and feasibility study in February. Five alternatives were studied in detail.

On-site	
Containment	$ 1,235,000
Encapsulation	$ 4,951,000
Fixation	$13,305,000
Off-site	
Industrial Landfill	$16,991,000
Secure Landfill	$25,386,000

  Each alternative was determined to effectively mitigate damage to and provide adequate protection of public health, welfare and the environment.

- A public meeting was held in Bruin on February 11, 1982. 115 people attended. Local citizens have shown little concern about the site. After the meeting, EDF obtained a copy of the feasibility study report and submitted comments which were critical of the on-site containment options. Concern centered around the stability of the dike. A stability study has been completed and recommendations to improve stability will be incorporated into the final design.

- Another public meeting will be scheduled to announce the selection of a remedy. Region expects EDF to attend. The Region will be prepared to address the concerns raised by EDF and provide technical justification for the selected remedy.

- o There is little enforcement potential at the site. Current site owner has filed bankrupcy. Generators can not be traced. State will explore possibility of placing a lien on the property in the hopes of recovering costs if it is ever sold.

- o The recommended alternative includes waste containment (off-site disposal of supernatant, stabilization of sludges, capping, and surface cleanup of tanks), passive ground water controls, and dike stabilization. The total estimated capital cost is $1,456,000. O&M costs are estimated at $60,000 (present worth) over 30 years. The State has agreed with this approach.

- o The "Record of Decision" certifies that:

  - The selected remedy is the cost-effective remedy for the site
  - Off-site disposal of the supernatant is the cost-effective approach for that portion of the project
  - Monies are available in the Fund to finance the remedy

- o The following actions are required to move project into construction:

- Approve proposed remedy	AA, OSWER
- Public Meeting (two week lead time)	Region
- Begin Design Phase (3 months)	HSCD/Region
- Prepare Action Memo (for construction)	HSCD
- Approve Action Memo	AA, OSWER
- Prepare State Superfund Contract	Region/State
- Sign State Superfund Contract	AA, OSWER/State
- Prepare IAG with Corps	HSCD
- Compete and Award Construction Contract	Corps
- Begin Construction (18 months)	Corps

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

JUN 2 1982

OFFICE OF
SOLID WASTE AND EMERGENCY RESPONSE

MEMORANDUM FOR THE RECORD

SUBJECT: Analysis of On-Site Versus Off-Site Options for Supernatant at Bruin Lagoon

FROM: Paul F. Nadeau, PE, Chief
Design and Construction Section (WH-548E)

On-site and off-site options for the disposal of supernatant from the Bruin Lagoon site have been analyzed. The off-site option involves the transportation of the waste materials to a licensed disposal facility. The estimated cost for transportation and disposal is $100,000. The on-site option involves bench studies and system design, fabrication of a package treatment system, facility start-up, treatment, and disposal of sludges. The primary treatment required is neutralization and sedimentation. Organics removal may also be needed. The costs of this option depend on the availability of suitable on-site tankage, and the extent of treatment required to produce an effluent suitable for discharge to Bear Creek. However, costs are likely to be in the $100,000 range. An overriding factor in the analysis is the reliability of the options. Off-site disposal in a licensed facility is considerably more reliable than the fabrication of the on-site plant. Start-up problems are avoided, and the licensed facility must comply with NPDES permits. Also the time to complete the work is considerably reduced.

Based on the above information, it has been determined that off-site disposal of the supernatant is more cost-effective than other on-site options.

REMEDIAL IMPLEMENTATION ALTERNATIVE SELECTION
BRUIN LAGOON SUPERFUND SITE
BRUIN BOROUGH
BUTLER COUNTY, PENNSYLVANIA
MAY 25, 1982

HISTORY

The Bruin Lagoon site occupies over four acres along the western bank of Bear Creek. The focal point of the site is the open Bruin Lagoon, an earthen diked lagoon of about one acre, containing approximately 35,000 cubic yards of asphaltic sludge and 130,000 gallons of acidic liquid supernatant. Operation of the site began in the 1930's when the Bruin Oil Company used the lagoon for the disposal of white oil production wastes. For a period of over 40 years, Bruin Lagoon was used for the disposal of sludge residues. Currently the site is owned by the AH&RS Coal Company.

The waste material consists of white oil production wastes, residue from waste motor oil re-refining, coal fines, and fly ash. The American International Petroleum Company owned the site in 1968 when a spill of an estimated 3,000 gallons occurred, and the Allegheny River was drastically impacted, killing an estimated 4,000,000 fish and resulted in the shutdown of water supplies. American International reinforced the dike and sold the property a few years later to the AH&RS Coal Company.

In addition to sludge and liquid supernatant, the site contains about 40,000 cubic yards of covered lagoon material in which soil and sludge were mixed during burial, 13,000 cubic yards of contaminated dike soil, and 2,000 cubic yards of contaminated surface soil from the scrap tankage area. Adjacent properties have been affected by the presence of Bruin Lagoon. A flood overflow in 1980 contaminated an area of about 44,000 square feet on adjacent property north of the lagoon. Presently there is an effluent pond north of the open lagoon which contains about 30,000 gallons of supernatant overflow.

Acid sludges, similar to the one at Bruin Lagoon, are typically 30 to 35 percent hydrocarbons, and 65 to 70 percent sulfur, green sulfonic acid, sulfuric acid and acid esters, and sodium sulfate. The supernatant has a low pH, because of the highly soluble nature of sulfuric acid, sulfonic acid, and sodium sulfate in water. This is consistent with the materials found in Bruin Lagoon. Alkyl benzene sulfonate (ABS), a well known surfactant or detergent, is also present in the Bruin Lagoon sludge and is an end product of the sulfonic acid reaction.

CURRENT STATUS

Two main routes for contaminant migration exist at the Bruin Lagoon Superfund site: groundwater and surface water. Sampling of monitoring wells has confirmed that localized downgradient groundwater contamination has resulted from the site. A single series of surface water samples indicated contamination from the lagoon, most likely from groundwater seepage into Bear Creek. In addition, potential exists for the failure of the dike enclosing the lagoon thereby releasing the lagoon contents to Bear Creek.

The feasibility study published by Weston in February 1982 identified five alternatives for remedial action at the Bruin Lagoon. The five alternatives and their associated costs are presented below:

OPTION	ESTIMATED CAPITAL COST
On-Site	
Containment	$1,235,000
Encapsulation	$4,951,000
Fixation	$13,305,000
Off-Site	
Industrial Landfill	$16,991,000
Secure Landfill	$24,386,000

(O&M costs equal approximately 6% of the capital costs for each alternative.)

Each of the alternatives includes a study to determine and ensure the stability of the dike enclosing the lagoon before any construction is undertaken at the site. In addition, each of the alternatives would effectively mitigate damage to and provide adequate protection of public health, welfare, and the environment.

On February 11, 1982, at a meeting in Bruin, we described each of the remedial alternatives to a group of approximately 115 people consisting of students, contractors, local citizens and representatives of public interest groups. At the meeting and during the two week comment period which followed, we received a number of comments regarding the alternatives proposed by Weston. In general, the few comments we received from local citizens indicated little concern regarding the site and on-site remedial alternatives. Comments sponsored by outside public interest groups such as the Environmental Defense Fund and Western Pennsylvania Citizens for Safer Communities recommended more expensive off-site alternatives.

On March 10, 1982, Region III met with representatives of the Pennsylvania Department of Environmental Resources to discuss the alternatives presented in Weston's report. After giving careful consideration to the cost-effectiveness of each alternative and evaluating comments we had received, the State recommended that we implement the containment strategy at the site with passive groundwater controls. A letter confirming the State's decision is enclosed as Attachment A.

In May 1982, Weston completed a Dike Stability Study which recommends measures to be taken to ensure the stability of the dike during and after construction at the site. In addition, in May 1982, Weston completed an Environmental Analysis for the Bruin Lagoon site. Based on the information contained in the Environmental Analysis, the Region has made a Finding of No Significant Impact (FONSI) as a result of the proposed action at the site. A copy of the FONSI executed by Region III is enclosed as Attachment B.

RECOMMENDED ALTERNATIVE

Section 300.67(j) of the proposed National Contingency Plan (NCP) (FR 10993; March 13, 1982) states that the appropriate extent of remedy shall be determined by the lead agency's selection of the remedial alternative which the agency determines is cost-effective (i.e., the lowest cost alternative that is technologically feasible and reliable) and which effectively mitigates and minimizes damage to and provides adequate protection of public health welfare or the environment. Based on our evaluation of the cost-effectiveness of each of the proposed alternatives, the comments received from the public, information from the dike stability study, the draft Environmental Analysis, and information from the State, we have determined that the On-Site Containment strategy identified in the feasibility study meets the NCP criteria.

The On-Site Containment option entails the specific activities identified in Attachment C. In addition, the remedial option would include measures to ensure dike stability and passive groundwater controls. The costs associated with this option are listed below:

Activity	Estimated Cost
Waste Containment	$1,235,000
Passive Groundwater Controls	$131,000
Dike Stabilization	$90,000
Total	$1,456,000

Monitoring and maintenance costs are estimated to be a total of $60,000 (present worth) for a period of 30 years.

PROPOSED ACTION

We request your approval of On-Site Containment with passive groundwater controls and dike stabilization as the remedial implementation option for Bruin Lagoon. In addition, we request the allocation of $1,456,000 for the project. Within two weeks of receipt of your approval, we will hold a public meeting to discuss the selected alternative with the citizens of Bruin and the surrounding areas.

TENTATIVE SCHEDULE

Public Meeting	Within 2 weeks of receipt of Headquarters approval
Begin Detailed Design	Immediately following public meeting
Complete Detailed Design	Within 3 months of initiation

If you have any questions, please call Kathy Hodgkiss at 597-9023.

Attachments